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ABSTRACT

The equalization formula used by 81 percent of Illinois school districts to compute their state aid was designed to meet the requirement of fiscal neutrality established in Serranc v. Priest. However, the inclusion of the operating tax rate in the resource equalizer formula tends to help income-rich school districts more than income-poor districts. This study investigated the effect of various income-weighted operating tax rates on the distribution of state aid. Three approaches--per capita weighting, grouped weighting of median family income, and individual weighting of median family income--were tried on all districts, except secondary, in the state. The variables examined were the type of community (central city, suburb, independent city, or rural area), effect on district expenditure variation, and effect on fiscal neutrality. It can be concluded that the per capita method would be the best weighting to be applied to the operating tax rate. Per capita weighting is the best in measure of fiscal neutrality and offers other advantages--it does not penalize districts with above average income and it provides more opportunity for income-poor districts to fully participate in the state aid system. (Author/IRT)

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VARIOUS INCOME-WEIGHTED OPERATING TAX RATES AND ILLINOIS STATE AID TO EDUCATION

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FOREWORD

Illinois public school districts can choose either the Strayer-Haig formula or the resource equalizer formula to compute their state aid claims. Most of them have chosen the resource equalizer formula. Under the resource equalizer formula, school districts with the same operating tax rate will be guaranteed the same operating expenditure level in the long run. It is known that lower operating tax rates tend to be associated with school districts with lower median family income or per capita income, and vice versa, especially, in elementary and high school districts. Hence, school districts with a lower income level tend to have a lower operating expenditure level and vice versa. In other words, the inclusion of the tax rate in the resource equalizer formula may be helping (income) rich school districts more than (income) poor districts in terms of operating expenditures.

It is harder for the (income) poor districts to pass referenda in order to obtain a higher operating expenditure level under the resource equalizer formula. To provide equal access to available resources for the school districts with less ability-to-pay, i.e., lower income level, two methods have been proposed or used to include an income factor in the state aid formula. The first method is to weight assessed valuation by income. The second method is to weight tax rates by income. It was the purpose of this study to investigate the effects of three separate income weightings applied to operating tax rates on the distribution of Illinois state aid to education.

This report is a product of the joint efforts of several staff members of the Illinois Office of Education. The staff members of the Data Services Section provided assistance in data processing. Dr. Warren B. Carson, Department of Administrative Operations, and Dr. J. Dan Hou, Department of Planning and Research, Research and Statistics Section, were responsible for the study design, data analysis, and writing of this report.

Joseph M. Cronin
State Superintendent of Education

VARIOUS INCOME-WEIGHTED OPERATING TAX RATES
AND ILLINOIS STATE AID TO EDUCATION

Introduction

In Illinois, public school districts can choose either the resource equalizer formula or the Strayer-Haig formula to compute their state aid claims. In 1975-76, 81 percent of Illinois school districts with 94 percent of pupils picked the resource equalizer formula. According to the resource equalizer formula, districts with the same operating tax rate are guaranteed the same level of expenditures in the long run. As for districts with different operating tax rates, those with higher operating tax rates are guaranteed higher levels of expenditures. The difference between the guaranteed expenditures and local revenues is covered by state aid. The local revenues come from taxation on assessed valuation of real property within the local school district. In other words, the guaranteed expenditure level is the function of operating tax rates rather than assessed valuation under the resource equalizer formula.

The resource equalizer formula was designed to meet the requirement of fiscal neutrality, a principle established in Serrano v. Priest. Districts with lower assessed valuation per pupil were the major concern of the Serrano case. Data in Table 1 show that these districts tend to be the ones with higher operating tax rates. Hence, these districts are likely to benefit the most from the resource equalizer formula.

It has been asked very often whether (income) poor families live in school districts with lower assessed valuation per pupil. In 1974, Benson stated that "poor people live in all types of districts, as characterized by assessed valuation per student."[1] Testing this conclusion, Hou conducted

Table 1

The Correlation Coefficients between Various Variables and 1973 Operating Tax Rates by District Type

	1973 EAV* per TWADA**	Median Family Income	Per Capita Income
Elementary	-0.27	0.65	0.61
High School	-0.28	0.55	0.55
Unit	-0.33	0.29	0.23

*EAV stands for equalized assessed valuation.
**TWADA is an acronym for Title I weighted average daily attendance.

a study in 1975 to investigate the relationship between district assessed valuation per pupil and median family income for Illinois. He found a curvilinear relationship existing between these two variables. For each type of school district with below-the-median assessed valuation per pupil, a positive relationship was found between district median family income and assessed valuation per pupil. Among school districts with above-the-median assessed valuation per pupil, elementary and unit districts show no noticeable relationship between median family income and assessed valuation per pupil, while the relationship for high school districts was found to be negative.[2] In other words, there are school districts in Illinois which are low in median family income, but high in assessed valuation per pupil. These districts tend to have low operating tax rates. Under the resource equalizer formula, these districts are not guaranteed so high an expenditure level as are the school districts with higher operating tax rates.

Table 1 also reveals that lower operating tax rates tend to be found in school districts with lower median family income or per capita income, and vice versa, especially in elementary and high school districts. Under the resource equalizer formula, a lower expenditure level is guaranteed to districts with lower operating tax rates, and a higher expenditure level to districts with higher operating tax rates. Hence, a lower expenditure level tends to be associated with a lower income level, and a higher expenditure level with a higher income level. In other words, the inclusion of the operating tax rate in the resource equalizer formula tends to help (income) rich school districts more than (income) poor districts in terms of expenditure level.

To provide equal access to available resources for school districts with less ability-to-pay, i.e. lower income level, two methods have been proposed or used to include an income factor in the state aid formula. The first method is to weight assessed valuation by income.[3] As such, districts with higher assessed valuation per pupil and lower income level would increase access to state funds. The second method is to weight tax rates by income.[4] The weighting would give tax rate credits to school districts with lower income level. As a result, these (income) poor districts would have a greater opportunity to participate fully in the state aid system. The second method may exert more influence than the first method on school districts using the resource equalizer formula, in which the expenditure level is the function of operating tax rates. Therefore, the second method should be considered more carefully in planning the reform of a state aid system.

It was the purpose of this study to investigate the effects of various income-weighted operating tax rates on the distribution of Illinois state aid to education.

Objectives of the Study

The objectives of the study were to investigate the following questions:

1. Which types of communities will be affected the most by income-weighted operating tax rates: central cities, suburbs, independent cities or rural areas?
2. What are the effects of income-weighted operating tax rates on the reduction of district expenditure variation?
3. What are the effects of income-weighted operating tax rates on fiscal neutrality?

Sources of Data

The fiscal data used in this study were retrieved from the data files of the Illinois Office of Education. These fiscal data include those for calculating estimated 1975-76 state aid. Median family income and per capita income data were obtained from the 1970 Census: Illinois School District Profiles, which was also published by the Illinois Office of Education. Information in the Profiles was retrieved from the fourth count tape of the 1970 Census data developed by the U.S. Bureau of the Census. Census data used to classify school districts in the geographical typology were retrieved from the fifth count tape of the 1970 Census data.

Variables Used and Definitions of Terms

Community Type

In this study a geographical typology was used to classify communities served by school districts. According to the geographical typology, Illinois school districts were put into the following four categories: central city, suburb, independent city, and rural area. A central city school district is one which serves the largest city in the standard

metropolitan statistical area (SMSA) as defined by the U.S. Bureau of the Census in 1970.[5] School districts with less than 50 percent of population living in urbanized areas were classified as rural area districts, regardless of whether they are in SMSA's or non-SMSA's. On the other hand, school districts with over 50 percent of their population residing in the urbanized areas were considered as "urban" school districts. The SMSA urban school districts except those of central cities were further categorized as suburbs. If the urban school districts are not in the SMSA's, they were considered as independent city districts.

Estimated Expenditures

For this study, actual operating expenditures are not available. Hence, operating expenditures were estimated by adding estimated 1975-76 state aid to local operating revenues. The local operating revenues are the product of district assessed valuation multiplied by its operating tax rate.

Income-Weighted Operating Tax Rates

In this study three income-weighted operating tax rates were included separately in the simulations of 1975-76 estimated state aid formulas. In the simulations, all of the variables except the operating tax rate were held constant. The district operating tax rate was replaced by an income-weighted operating tax rate in each simulation. The following are the three income-weighted operating tax rates:

OTR1. This income-weighted operating tax rate was developed on the basis of the rank order of the district median family income. More operating tax rate credits were given to the group of districts with lower median family income. However, the credits were not given to school

districts with a median family income higher than the state median family income ($11,096), or districts with operating tax rates lower than the maximum operating tax rates of non-referendum (1.27% for elementary and high school districts, and 2.075% for unit districts.) In essence, this is a grouped weighting of median family income.

OTR2. The district operating tax rate was multiplied by the ratio between the state median family income ($11,096) and the district medain family income. For school districts where either the median family income was above $11,096 or the operating tax rate was below the maximum operating tax rate of non-referendum, no credit was applied to the operating tax rate. In other words, OTR2 is an individual weighting of median family income.

OTR3. In this weighting, the district operating tax rate was multiplied by the ratio between the state per capita income ($3,498) and the district per capita income. School districts with either the per capita income above $3,498 or the operating tax rate below the maximum operating tax rate of non-referendum were given no weighting.

For those school districts either with the income level above the state average, or with the operating tax rate below the maximum operating tax rate of non-referendum, the operating tax rates remain unweighted for OTR1, OTR2, and OTR3. In other words, operating tax rates for each of these districts were the same for all of the simulations.

Operating Tax Rates

Operating tax rates as defined in The School Code of Illinois consists of all district taxes extended for all purposes except bond and interest, summer school, rent, transportation (will be optionally included in 1976-77), special education building, capital improvement, and vocational education building.[6]

Study Population

The population of this study consists of all public school districts in Illinois, except high school districts. The reason for excluding high school districts is that these school districts in theory can reach the maximum of the state guaranteed expenditure levels without passing referendum. In other words, high school districts can reach that maximum expenditure level with an operating tax rate of 1.05%, which is below the 1.27% of the maximum operating tax rate of non-referendum. It was found that operating tax rates of all high school districts fall below the 1.27%. In this study, any school district with an operating tax rate below the maximum operating tax rate of non-referendum was given no weighting to their operating tax rates.

Statistics

In this study, three statistics were used: percentage, coefficient of variation, and coefficient of regression. Percentage was used to investigate the change of operating tax rates and state aid by district type and community type. The coefficient of variation, which is the product of 100 multiplied by the ratio of the standard deviation to the mean, was used to measure the variation of expenditures per TWADA. A lower coefficient indicates a reduction in expenditure differences between districts. The coefficient of regression was used to measure fiscal neutrality. In the regression equation, the logarithm base 10 of the estimated expenditures per TWADA is the dependent variable, and the logarithm base 10 of assessed valuation per TWADA is the independent variable. The coefficient of regression can be either positive or negative. If the sign is positive, the closer the coefficient is to zero, the closer it shows fiscal neutrality. If the sign is negative, the farther the coefficient is from zero, the greater it shows the compensatory effects.

Limitations

Income data used in this study were retrieved from the fourth and the fifth count tapes of the 1970 Census data. The data reflect consolidations of Illinois school districts until July of 1975. For school districts consolidated afterwards, no income data are available to weight their operating tax rates. Hence, for these districts estimated state aid without income weighting was used for each weighting instead.

A small sample size was used in collecting the 1970 Census data. For personal income data, the sample size was only 20 percent of the population. Pohlmann found that the sampling errors in the fourth count of the 1970 Census data are worse for those school districts with enrollment fewer than 300.[7] Therefore, income data used in this study, especially those of small districts are vulnerable to sampling errors.

The income data retrieved from the 1970 Census reflect the 1969 personal income. It has been seven years since the Census was taken. These out-of-dated income data may cause some errors in measuring the real taxpaying ability of districts.

Findings of Data Analysis

Effects of Income Weighting on Operating Tax Rates

Table 2 presents percentages of the best six months average daily attendance (ADA) and percentages of school districts that would be influenced by the three income weightings. If the operating tax rate is weighted by median family income, i.e., OTR1 or OTR2, 33.77 percent of elementary school districts with 17.68 percent of ADA, and 72.07 percent of unit districts with 41.41 percent of ADA could be favorably affected. Table 2 also shows that the per capita income weighting could cause an increase of the operating tax rate for purposes of estimating state aid

claims. The increase would be reflected in 40.22 percent of elementary districts (or 181 districts) with 28.14 percent of ADA, and 74.54 percent of unit districts (or 331 districts) with 41.46 percent of ADA. From these data, it can be concluded that the per capita income weighting among the three studied income weightings could exert the most effects on the operating tax rates of elementary and unit districts on the basis of the number of affected ADA and school districts.

Table 2

Percentage of ADA and School Districts
Benefiting from Income Weighting

	OTR1*	OTR2**	OTR3***
Elementary			
ADA: 497,145	17.68	17.68	28.14
Districts: 450	33.77	33.77	40.22
Unit			
ADA: 1,276,749	41.41	41.41	41.46
Districts: 444	72.07	72.07	74.54

*OTR1: Operating tax rate with the grouped weighting of median family income.
**OTR2: Operating tax rate with the individual weighting of median family income.
***OTR3: Operating tax rate with the per capita income weighting.

Table 3 displays the percentages of ADA and school districts with the maximum operating tax rate for full funding, i.e. 1.95% for elementary or 3.00% for unit districts as of 1975-76. Only 20.44 percent of elementary districts (or 92 districts) with 46.01 percent of ADA, and 4.05 percent of unit districts (or 18 districts) with 42.01 percent of ADA reached the full-funding maximum operating tax rates without any income weighting in 1975-76. If the income weightings are applied to the operating tax rates,

the percentages of districts with the full-funding maximum operating tax rates will all increase. Among the three income weightings, the per capita income weighting can result in the highest percentage of districts with the maximum full-funding operating tax rates: 35.33 percent of elementary districts with 52.97 percent of ADA, and 41.21 percent of unit districts with 56.94 percent of ADA. These represented an increase of 14.89 percent of elementary districts (or 67 districts) and 37.16 percent of unit districts (or 165 districts).

Table 3

Percentage of ADA and School Districts with the Maximum Operating Tax Rate for Full Funding

	OTR*	OTR1**	OTR2**	OTR3**
Elementary				
ADA: 497,145	46.01	50.97	50.21	52.97
Districts: 450	20.44	33.33	32.44	35.33
Unit				
ADA: 1,276,749	42.01	51.71	54.67	56.94
Districts: 444	4.05	31.53	39.86	41.21

*OTR: Operating tax rate without income weighting.
**OTR1, OTR2 and OTR3 are the same as those in Table 2.

Effects of Income Weighting on State Aid

In the 1973 reform of the Illinois state aid system, limitations were imposed on school districts to prevent full funding of the state aid difference between the old and new systems in the first four years. In this study, "estimated claim" indicated the amount of state aid a school district can claim with all the limitations, while "fully-funded state aid" refers to the amount of state aid a district may be fully entitled in the long run without any such limitations.

Tables 4 and 5 present separately the total state aid for estimated claim and full funding by district type. The total state aid for estimated claim in 1975-76 was $1.203 billion without income weighting, $1.237 billion with the grouped weighting of median family income, and $1.234 billion with the individual weighting of median family income, and $1.238 billion with the per capita income weighting. In the long run, the state aid total for full finding is $1.452 billion without income weighting, $1.512 billion with the grouped weighting of median family income, $1.508 billion with the individual weighting of median family income, and $1.515 billion for the per capita income weighting.

Table 4

State Total Estimated Claim: 1975-76

	OTR	OTR1	OTR2	OTR3
Elementary	$ 260,483,232	$ 266,508,976	$ 265,204,224	$ 267,150,304
High School	112,055,936	112,055,936	112,055,936	112,055,936
Unit	830,675,456	858,903,040	856,649,472	858,811,904
State Total	$1,203,214,624	$1,237,467,952	$1,233,909,632	$1,238,018,144

Table 5

State Total Fully Funded State Aid

	OTR	OTR1	OTR2	OTR3
Elementary	$ 289,173,760	$ 300,530,176	$ 298,401,024	$ 301,302,528
High School	223,918,912	223,918,912	223,918,912	223,918,912
Unit	939,083,008	987,549,952	985,853,696	989,596,928
State Total	$1,452,175,680	$1,511,999,040	$1,508,173,632	$1,514,818,368

Tables 6 and 7 show the effects of the various income weightings on the estimated claim and fully funded state aid per TWADA by district type and by community type. For elementary school districts, the per capita income weighting (OTR3) could cause the largest percentage increase of state aid: 2.56 percent for 1975-76 estimated claims per TWADA, and 4.19 percent at full funding. For unit districts, the largest percentage increase of 1975-76 estimated state aid claim per TWADA could be caused by the grouped weighting of median family income (OTR1). The percentage increase would be 3.39 percent over the one for non-weighting. However, if it would be fully funded in the long run, the per capital income weighting (OTR3) would give unit districts the largest percentage increase in state aid, i.e., 5.38 percent.

Table 6

Estimated State Aid Claim per TWADA with an Income Weighting as a Percentage of 1975-76 Estimated Claim per TWADA With No Income Weighting

	OTR	OTR1	OTR2	OTR3
Elementary	$496.82	102.31%	101.81%	102.56%
Unit	$525.43	103.39%	103.12%	103.38%
Elementary Districts				
Suburbs	$501.46	101.07%	100.73%	101.27%
Independent Cities	$498.52	111.11%	109.37%	111.56%
Rural Areas	$468,47	105.69%	104.79%	106.15%
Unit Districts				
Central Cities	$553.69	100.74%	100.44%	100.11%
Suburbs	$558.95	102.33%	101.90%	103.26%
Independent Cities	$501.97	110.13%	109.91%	110.54%
Rural Areas	$431.65	108.79%	108.81%	109.52%

Table 7

Estimated Fully Funded State Aid per TWADA with an Income Weighting as a Percentage of That With No Income Weighting

	OTR	OTR1	OTR2	OTR3
Elementary	$551.54	103.92%	103.19%	104.19%
Unit	$594.00	105.16%	104.98%	105.38%
Elementary Districts				
Suburbs	$558.22	101.49%	101.06%	101.93%
Independent Cities	$540.52	119.81%	116.57%	117.89%
Rural Areas	$518.38	111.82%	110.36%	121.19%
Unit Districts				
Central Cities	$648.43	101.29%	100.95%	100.60%
Suburbs	$608.89	103.05%	102.64%	104.40%
Independent Cities	$539.85	115.11%	115.21%	116.06%
Rural Areas	$466.20	114.81%	115.33%	116.54%

Tables 6 and 7 also reveal the effects of three income weightings on the distribution of state aid among the different types of communities. With regard to elementary districts, if the per capita income weighting were used in the formula, the percentage increase of 1975-76 estimated claim would be the highest: 1.27 percent for suburbs, 11.56 percent for independent cities and 6.15 percent for rural areas. In the long run, the fully funded state aid to these districts under the per capita income weighting would increase 1.93 percent for suburbs, 17.89 percent for independent cities (which is a little lower than that under the grouped weighting of median family income), and 21.19 percent for rural areas.

For unit districts, the findings for estimated claim and full funding are consistent. For central cities, the greatest percentage increase in state aid for the estimated claim and at full funding can be caused by the grouped weighting of median family income weighting: 0.74 percent and 1.29 percent, respectively. As for the other types of

communities, the per capita income weighting would cause the largest percentage increase of estimated claim: 3.26 percent for suburbs, 10.54 percent for independent cities, and 9.52 percent for rural areas. If state aid is fully funded, these communities will also benefit the most from the per capita income weighting: 4.4 percent for suburbs, 16.06 percent for independent cities and 16.54 percent for rural areas.

Tables 6 and 7 also reveal that the percentage increase in state aid to elementary and unit districts in independent cities and rural areas would be much higher than that for these districts in central cities and suburbs. This finding reflects the fact that districts in independent cities and rural areas have a much lower median family income or per capita income than do districts in central cities and suburbs, as shown in Table 8. These lower income levels, together with

Table 8

Averages of District Ability and Effort Measures
by Community Type*

73 Operating Tax Rates:	1*	2*	3*	4*
Elementary		1.869	1.429	1.394
High School		1.720	1.332	1.437
Unit	2.456	2.600	2.323	2.275
Median Family Income:	1	2	3	4
Elementary		13,896	9,152	9,320
High School		13,343	9,105	8,883
Unit	10,186	11,228	8,971	8,606
Per Capita Income:	1	2	3	4
Elementary		4,141	2,849	2,810
High School		4,038	2,814	2,730
Unit	3,295	3,366	2,808	2,700

*Community types:
1 - Central City, 2 - Suburb
3 - Independent City, 4 - Rural Area

lower operating tax rates result in a very high percentage increase in state aid to districts in these communities.

Effects on Reduction of Expenditure Variation

Table 9 presents coefficients of expenditure variation for different income weightings. The coefficients of variation for all three weightings are lower than those for non-weighting. This indicates that the income weightings would have the effect of reducing expenditure variation. Among the three weightings, per capita income weighting produces the lowest coefficients with one exception. The exception is the one for expenditures with full funding of elementary districts. In this case, the grouped weighting of median family income results in a slightly lower coefficient than the per capita income weighting. However, the difference is not significant. Therefore, it can be concluded that the per capita income weighting would be the best weighting in reducing the variation of expenditures.

Table 9

Coefficients of Variation*: Estimated 1975-76 Expenditures per TWADA

	OTR	OTR1	OTR2	OTR3
	With Estimated Claim			
Elementary	30.95	29.58	29.77	29.53
Unit	13.31	12.47	12.47	12.44
	With Full Funding			
Elementary	29.79	27.59	27.91	27.60
Unit	13.66	13.41	13.42	13.39

*Coefficient of variation = (standard deviation/mean)*100

Effects on Fiscal Neutrality

Table 10 displays the coefficients of regression for all of the three income weightings. The coefficients of regression for the three income weightings are lower than those for non-weighting, if the estimated claim is included in computing estimated expenditures. The coefficients for both elementary and unit districts are the lowest, if the per capita income weighting is used. This indicates that the per capita income weighting is the best weighting among the three studied income weightings to move toward fiscal neutrality. If in the long run state aid is fully funded, the data in Table 10 also show that the per capita income weighting is still the best weighting to achieve fiscal neutrality for elementary districts. As for unit districts, it was found that the coefficients approach zero, (which indicates complete fiscal neutrality), and then become negative. These negative coefficients reflect compensatory effects. The higher the negative coefficient, the higher the compensatory effects. The per capita income weighting has the highest compensatory effects. Therefore, the per capita income weighting is the best weighting to move toward fiscal neutrality for both elementary and unit districts, and to have compensatory effects on unit districts with full funding.

Table 10

Coefficients of Regression*

	OTR	OTR1	OTR2	OTR3
	With Estimated Claim			
Elementary	0.1105	0.0852	0.0876	0.0832
Unit	0.0756	0.0383	0.0384	0.0367
	With Full Funding			
Elementary	0.0700	0.0147	0.0190	0.0137
Unit	0.0159	-0.0581	-0.0591	-0.0636

*$\log_{10}$ expenditures/TWADA = a + b $\log_{10}$ (EAV/TWADA)

Summary of the Findings

1. Among the three income-weightings, the per capita income weighting would be the best weighting in terms of the numbers of school districts and ADA, that would experience an increase in operating tax rate. The per capita income weighting would cause an increase in operating tax rate for purposes of computing state aid in 40.22 percent of elementary districts (or 181 districts) with 28.14 percent of ADA, and 75.54 percent of unit districts (or 331 districts) with 41.46 percent of ADA.
2. On the basis of the percentage of school districts reaching the maximum full-funding tax rates, which was 1.95% for elementary districts and 3.00% for unit districts as of 1975-76 the per capita income weighting would be also the best among the three income weightings. Under the per capita income weighting, the percentage of districts with the maximum full-funding operating tax rates would be: 35.33 percent of elementary districts with 52.97 percent of ADA, and 41.21 percent of unit districts with 56.94 percent of ADA. The change in the number of school districts with the maximum full-funding operating tax rates from non-weighting to the per capita income weighting would be: 92 versus 159 of elementary districts, and 18 versus 183 of unit districts.
3. Among the three income weightings, the per capita income weighting would be the most favored weighting for elementary and unit districts on the basis of the percentage increase in both per TWADA estimated claim and fully funded state aid.
4. Among elementary districts, the per capita income weighting would be the most favorable to districts of all three types of

communities: suburbs, independent cities and rural areas, if the percentage change per TWADA estimated claim is used as the criterion. If state aid were fully funded, the per capita income weighting would also be the most favorable to elementary districts in both suburbs and rural areas. However, the grouped weighting of median family income would be the most favorable weighting to elementary districts in independent cities.

5. Among unit districts, districts in communities of all types except central cities can benefit the most from the per capita income weighting in terms of estimated claim per TWADA. The grouped weighting of median family income would be of most benefit to unit districts in central cities, although the percentage increase would not be very substantial. These findings are consistent with those based on fully funded state aid per TWADA.

6. The data reveal a substantial percentage increase of per TWADA estimated claim and fully funded state aid for both elementary and unit districts in independent cities and rural areas in comparison with the increase for districts in suburbs or central cities, regardless of which of the three income weightings is used.

7. The coefficients of variation reveal that all three income weightings can reduce the variation of estimated expenditures per TWADA for elementary and unit districts, regardless of whether estimated claim or fully funded state aid is used. However, the per capita income weighting appears to be slightly better than the other two income weightings in reducing the variation of expenditures.

8. The coefficients of regression show that all three income weightings can move both elementary and unit districts closer to fiscal neutrality on the basis of either estimated claim or fully funded state aid. Among the three income weightings, the per capita income weighting appears to be the best weighting to bring about fiscal neutrality. Furthermore, it is important to note that all the three income weightings have compensatory effects on unit districts, if state aid is fully funded in the long run. However, the per capita income has the highest compensatory effects.

Conclusions

On the basis of the analyses of the data, it can be concluded that the per capita income weighting would be a better weighting to be applied to the operating tax rate than either the grouped weighting of median family income or individual weighting of median family income. If the per capita income weighting were to be adopted, the increase of the state total estimated claim of state aid for 1975-76 would be $35 million from $1.203 billion, which was the 1975-76 state total without income weighting. However, if state aid would be fully funded in the long run and the per capita income weighting would be used, the increase from $1.452 billion, which is for non-weighting, would be $63 million.

There are certain advantages to weight operating tax rates by income as suggested in the study. They are described as follows:

1. No penalties would be imposed on those school districts with above-the-state-average income. It is $3,498 of per capita income and $11,096 of median family income. The practice would be politically popular.

2. It would help the school districts in independent cities and rural areas substantially, together with hundreds of school districts in other areas. The inclusion of income weightings would increase the burdens to the state around $60 million for full funding of the formula in the long run.
3. It would provide more opportunities for income poor districts to fully participate in the state aid system. Data show that increase of the number of school districts with the maximum operating tax rates for full funding would be 67 elementary districts and 165 unit districts, if the per capita income weighting would be used in the Illinois state aid system.

References

1. Benson, Charles S., Paul M. Goldfinger, E. Ganeth Hoachlander, and Jessica S. Pers. Planning for Educational Reform: Financial and Social Alternatives. New York: Dodd, Mead & Company, 1974, p. 74.

2. Hou, Jaw-nan. "Effects of Selected Variables on the Distribution of Illinois State Aid to Education." Ph.D. disseration, Illinois State University, 1975, pp. 128-129.

3. See for example: Kelly, James A. State Financial Assistance for Public School Housing in Rhode Island. Providence, R.I.: Rhode Island Special Commission to Study the Entire Field of Education, November, 1976; Crosby, John C. "Equity in Taxation." Ph.D. disseration, Teacher College, Columbia University, 1972; and Illinois Office of Education. Effects of Various Income Weightings on the Distribution of Illinois State Aid to Education. Springfield, Ill.: The Office, 1976.

4. See for example: H. B. 1125, 79th General Assembly, State of Illinois (1975). In this Bill, 23 Illinois Representatives proposed to weight the operating tax rates by per capita income; and Hichrod, G. Alan and Ben C. Hubbard. The Concept of Fiscal Effort in the Illinois General Purpose Education Grant-In-Aid: Some Legal and Measurement Problems. Center for the Study of Educational Finance, Department of Educational Administration, Illinois State University, Normal, Ill., 1976.

5. U.S. Bureau of the Census. 1970 Census of Population: General Social and Economic Characteristics, Final Report, PC(1) - C15, Illinois. Washington, D.C.: Government Printing Office, 1972, App. 1-2.

6. Illinois Office of Education. The School Code of Illinois. St. Paul, Minn.: West Publishing Co., 1974, p. 141.

7. Pohlmann, Vernon C. "Suggested Uses and Some Limitations of School District Profiles." Illinois Office of Education. Springfield, Ill.: The Office, 1974, p. vii.